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Announcement

Allergy abstracts has been published since 1936 by members of the Allergy Division of the Jewish Hospital of Brooklyn. The Editorial Board is comprised of former residents of this department who contribute their services.

Allergy abstracts selects and abstracts those articles in the literature which may be of clinical or theoretical interest to workers in the field of allergy. Each abstract represents a summary of the author's findings and views, and its inclusion in allergy abstracts does not imply approval of its contents by the editor.

—*The Editors*

Asthma and Hay Fever

Studies in Mold Allergy. 3. Mold Spore Counts in Copenhagen. Fleusborg, E. W., and Samsoe-Jensen, T.: Acta Allergologica **3**: 49, 1950.

Using the Petri dish technique of Bernstein and Feinberg, the authors made daily mold spore counts in Copenhagen for a 2-year period, beginning in March, 1947. The average number of total colonies per year in Copenhagen was approximately 2.5 times the average for Chicago. A marked seasonal variation in the occurrence of air-borne mold spores was noted. The mold season began in May and lasted to the end of October or November. The 4 most prevalent molds were Hormodendrum, Pullularia, Penicillium, and Alternaria. Penicillium spores were uniformly present throughout the year. The other 3 molds showed strong seasonal variations. A close correlation was found between temperature, humidity, and the occurrence of Hormodendrum

colonies. As long as the product obtained by multiplying the temperature (C.) by the humidity (per cent) was below 1,000, very few Hormodendrum colonies were found.

Hormodendrum appeared to be the most important mold in the atmosphere in Copenhagen. Alternaria was unimportant. No relationship was noted between temperature, humidity, or other meteorologic conditions and the occurrence of Pullularia, Penicillium, and Alternaria spores.

Preliminary investigations on the indoor mold counts in the homes of 8 asthmatic children indicated that Penicillium was most prevalent, then came Aspergillus and Hormodendrum. The mold content varied from room to room. H.

Respiratory Tract Allergic Effects From Chemical Air Pollution. Wittich, F. W.: Arch. Indust. Hyg. & Occ. Med. **2**: 329, 1950.

Rusts, smuts, and organic material disseminated as fumes or particulate matter from manufacturing plants and mills, as well as chemical substances, including insecticides, used in various industries, may act as specific allergens to produce asthma, vasomotor rhinitis, and contact dermatitis. Chemicals may also be nonspecific irritants acting as a trigger mechanism. The important grain-growing areas of the country, particularly the Northwest, and the large industrial centers are most affected by this type of air contamination. The pollution of air with these substances is an important community health problem and requires extensive, well-planned study for adequate control. F.

Bronchial Asthma Due to Allergy to Tobacco Smoke in an Infant. Rosen, F. L., and Levy, A.: J. A. M. A. **144**: 620, 1950.

A 1-year-old infant with a positive family history of allergy and a personal history of various upsets believed to have been of an allergic nature developed symptoms of respiratory allergy at 6 months of age. At the age of 10 months, frank bronchial asthma was evident. Passive transfer studies showed positive reactions to tobacco, kapok, milk, banana, and house dust. There was a history of excessive exposure to cigarette smoke. Cessation of all smoking in the home resulted in complete recovery within a few days. Exposure to smoke 18 months later was followed by the appearance of a dry cough which again disappeared when the aforementioned precautions were reinstituted. F.

Dermatology

Inhalant Allergy. I. The Whealing Response of the Skin to Serial Dilution Testing. Rinkel, H. J.: Ann. Allergy **7**: 625, 1949.

Pollen-sensitive patients were titrated with pollen extracts in concentrations ranging from 1:40,000,000 to 1:100. Approximately 0.01 ml. of each solution was introduced intracutaneously, producing a 4 mm. wheal. The end point of reaction was defined as the first concentration which initiated a progressive increase in whealing, which was 2 mm. larger than the preceding nonreacting test. In 72 per cent of the patients tested, a clear end point was found; the next two concentrations showed a response of increasing size with an erythema of approximately constant size. Slight deviations from this normal pattern were occasionally seen where either the wheal, erythema, or both remained constant in size during several dilutions of increasing strength. This was called the plateau of reaction. In some patients, linear erythema re-

sponses were encountered where erythema was present from the first test applied regardless of the wheal size. The end point was that dilution which initiated progressive whealing. This response was not due to dermographism. Finally, an hourglass type of response was encountered where, as stronger solutions were introduced, whealing and erythema became progressively smaller to a point. Beyond this point, wheal and erythema again became larger with more concentrated solutions. W.

Inhalant Allergy. II. Factors Modifying the Whealing Response of the Skin. Rinkel, H. J.: Ann. Allergy **7**: 631, 1949.

Whealing responsiveness of the skin to serial dilution tests was influenced by several factors. Preseasonal treatment reduced skin responsiveness in 43 per cent of patients. In 36 per cent of patients, no change was noted; in 21 per cent, there was a definite increase in skin reactivity. A dramatic reduction in responsiveness, "flash response," was encountered in some patients after one or two doses of pollen extract. This diminished responsiveness of the skin was a more reliable indicator of skin sensitivity than that of initial testing. Inhalation of primary or secondary pollens and of other inhalants and the ingestion of offending foods may increase skin responsiveness. Therapeutic overdosage and excessive initial testing were factors which produced an erratic reduction in skin reactivity to the first successive testing. W.

Hyaluronidase Action on the Permeability of Human Skin. Some Experiments on Allergic Skin Reactions. Asboe-Hansen, G.: Acta dermat.-venereol. **30**: 27, 1950.

Studies were made with hyaluronidase, employing allergens as indicators of spreading. Dust, fungi, feathers, milk, flours, and pollens were the allergens used in specifically sensitive cases. These allergens were injected intracutaneously, either mixed with hyaluronidase or alone, into sites previously treated with hyaluronidase. In both instances, the pseudopods were fewer, blunter, and more transient; the wheals were flatter and disappeared more rapidly. When the scratch technique was used, the skin area was treated with 0.1 per cent hyaluronidase from 1 to 2 hours before injection of the antigen. Tests at control sites showed markedly positive reactions; those at the treated sites showed no reactions. Forty-eight hours later, fully developed reactions could be elicited at the treated sites. The application of a mixture of hyaluronidase, saline, and allergen to the scarified area produced an urticarial reaction.

Hyaluronidase treatment of the test site did not result in spreading effect on patch test reactions in sensitive individuals.

The biochemical relation of hyaluronidase to human skin is reviewed. H.

Intravenous Novocaine in Pruritic Dermatoses. Pratl, J., and Jirasek, L.: Acta dermat.-venereol **30**: 133, 1950.

One hundred twenty-three cases of pruritic dermatoses were treated with intravenous novocaine. Ten c.c. of an 0.5 to 1 per cent solution in saline was injected intravenously once or twice daily for a period of from 10 to 20 days. Beneficial effects were not observed in eczematous conditions, senile pruritis, or dermatitis herpetiformis. Good results were achieved in lichen ruber planus, Besnier's prurigo, and in 1 case of urticaria. The best results, however, were only transitory. Side effects included heat sensation, erythema, dizziness, headache, and urgency of urination. A fall in blood pressure followed an initial rise. H.

On Besnier's Prurigo in Finland. Pirila, V.: Acta dermat.-venereol **30**: 114, 1950.

Four hundred twelve cases of Besnier's prurigo were treated during the period between 1930 and 1948. There were 265 (64 per cent) females and 147 (36 per cent) males. The majority of the patients were in the 11- to 20-year age group. Hospitalization was required usually during the ages of puberty and early maturity. Positive intracutaneous tests were elicited in only 8 of 17 patients. In 6 of the 8 cases, the skin reactions were clinically significant. The importance of inhalants, especially the epidermals, is stressed. Egg, milk, and fish were the foods of greatest etiologic significance. H.

Eczematous Hypersensitivity Caused by Topical Application of Streptomycin. Saunders, W.: New York State J. Med. **50**: 1141, 1950.

A 25-year-old man was treated with streptomycin ointment for a coccogenous beard infection. Improvement was noted after 3 days and continued for about 3 weeks. At that time, a new ointment containing dihydrostreptomycin sulfate in a hydrophilic base was substituted and a new erythematous crusted eruption developed over the involved area. The dermatitis improved upon cessation of the topical streptomycin therapy and recurred when it was started again. An uneventful recovery ensued after the use of gramicidin ointment. Patch tests were performed with dihydrostreptomycin sulfate, hydrophilic base, petrolatum penicillin, and gramicidin. Only the test with dihydrostreptomycin was positive. B. S.

Exfoliative Dermatitis Complicating Streptomycin Therapy. Harris, W. C., and Walley, R. V.: Lancet **258**: 112, 1950.

Streptomycin was administered to a 45-year-old woman with severe pulmonary tuberculosis. On the ninth day of therapy, her temperature rose and a maculopapular rash developed on the upper abdomen. This spread to the arms, and several days later, stomatitis with cheilosis and conjunctivitis appeared. Streptomycin was continued because of the severity of the tuberculosis. On the fifteenth day of therapy, the rash became worse and vesiculation began. Benadryl and vitamin therapy were started and streptomycin was discontinued. The following day, the patient's temperature fell, but the dermatitis progressed through the stages of vesiculation to complete exfoliation, which reached its height on the twentieth day. By the twenty-seventh day, the dermatitis, stomatitis, and conjunctivitis cleared. The authors believe that the continuance of streptomycin is unsafe once a rash has developed, and believe that the risk involved in further treatment under such conditions must be carefully weighed against that incurred by its discontinuance. B. S.

Otorhinology and Ophthalmology

Effect of Autonomic Denervation on Nasal Mucosa. Millonig, A. F., Harris, H. E., and Gardner, W. J.: Arch. Otolaryng. **52**: 359, 1950.

In a series of 27 cases, nasal stuffiness and discharge followed the surgical interruption of the sympathetic nervous supply to the mucous membrane of the nose. Objectively, there was swelling of the nasal mucosa and increased nasal secretion. These changes were the result of a loss of vasoconstrictor tone secondary to decreased formation of adrenin at the terminal endings of the sympathetic fibers and to uninhibited parasympathetic activity. In 6

patients, in whom the parasympathetic nerve supply to the nasal mucous membrane was interrupted, the exact opposite effects were noted; that is, the mucous membranes were shrunken and dry. The similarity between the appearance of the nasal mucosa following sympathectomy and that observed in allergic rhinitis suggests that there may be a close association between the autonomic system and allergic disease. C.

Antrochoanal Polyp. Heck, W. E., Hallberg, O. E., and Williams, H. L.: Arch. Otolaryng. **52**: 538, 1950.

The records of a series of 64 patients with antrochoanal polyps were reviewed. They constituted 3.7 per cent of a total of 1,720 patients with "nasal polyps" seen at the Mayo Clinic during a 10-year period. At least 1 manifestation of allergy was present in 24 per cent of the 64 patients. When cases with ordinary nasal polyps were evaluated by the same criteria employed above, the incidence of allergy was found to be 100 per cent. Microscopic examination of the tissues of 54 of these patients revealed tissue eosinophilia in 11 (20 per cent). Eosinophilia was discovered nearly 3 times as frequently in patients with ordinary nasal polyps. A comparison of antrochoanal and nasal polyps, grossly and microscopically, revealed only 3 dissimilarities. The dumbbell shape of the intact antrochoanal polyp is characteristic. Nasal polyps frequently contain mucous glands, while antrochoanal polyps almost never contain mucous glands. Tissue eosinophilia occurs more frequently and to a higher degree in nasal polyps than in the antrochoanal variety. These observations show that the ordinary nasal polyp is of allergic origin, but suggest that the stimulus for the growth of the antrochoanal polyp is different in nature. C.

Allergy in Ophthalmology. Hansen, E. W.: Tr. Am. Acad. Ophth., p. 299, 1950.

A comprehensive review of the manifestations of allergy found in the various ocular tissues is presented. The presence of eosinophils in the exudates is regarded as the most significant diagnostic criterion of allergy as a cause of lesions involving the lids and conjunctivae. Both phlyctenular conjunctivitis and vernal conjunctivitis are now considered to be allergic illnesses. Many lesions involving the cornea and retina are also explained on the basis of sensitivity reactions. Considerable experimental work has been done on the role of hypersensitivity as a causative factor in endogenous uveal disease. C.

Miscellaneous Allergies

Acute Disseminated Encephalomyelitis Following Immunization With Homologous Brain Extracts. I. Studies on the Role of a Circulating Antibody in the Production of the Condition in Dogs. Thomas, L., Paterson, P. Y., and Smithwick, B.: J. Exper. Med. **92**: 133, 1950.

Of 55 dogs injected repeatedly for 1 year with homologous brain tissue antigen and Freund's adjuvant, 35 developed neurological signs manifested by ataxia and paralysis. Over 30 per cent of those affected failed to show paralysis until after 6 months. Histologic study revealed focal areas of myelin sheath destruction throughout the brain and spinal cord. The lesions were closely related to blood vessels and veins. Venules and capillaries were

commonly involved, sometimes with the formation of perivascular hemorrhages. Inflammatory infiltrates accompanied these lesions and consisted of polymorphonuclear neutrophils, lymphocytes, and epithelioid cells. "In all instances a moderate degree of leptomeningitis was present, characterized chiefly by lymphocytes." No abnormality of other organs was found.

The presence of complement fixation antibody in the serum and a flocculation reaction between blood serum and alcohol extracts of immunized animals paralleled each other. This occurred in the majority of immunized dogs irrespective of the presence of neurological signs. The antigen reactive for complement fixation tests was present in mammalian nerve, in the adult brain of several mammalian species, was absent from the brain of newborn dogs, was contained in the unsaponifiable fraction of brain lipids and could be separated from cholesterol. However, "In some animals the antibody appeared in high titer several months before the onset of paralysis, while in others the encephalomyelitis occurred at a time when antibody was not demonstrable." The possible etiologic factors in "so-called 'allergic' encephalomyelitis" are discussed. E. K.

Dilantin Sensitivity. Report of a Case of Hepatitis With Jaundice, Pyrexia and Exfoliative Dermatitis. Chaiken, B. H., Goldberg, B. I., and Segal, J. P.: New England J. Med. **242**: 897, 1950.

A 29-year-old male epileptic with a negative personal and family history for allergy received 100 mg. of Dilantin Sodium (sodium diphenylhydantoinate) 3 times a day. Following the onset of malaise, anorexia, and muscle pain on the seventeenth day the drug was discontinued. A week later, the patient developed a generalized pruritic rash, jaundice, chills, high fever, abdominal pains, vomiting, muscle tenderness, and enlarged lymph nodes. The liver was tender and palpable 3 fingerbreadths below the coastal margin. The white blood count was 8,000, with 27 per cent neutrophils, 43 per cent normal and 24 per cent atypical lymphocytes, and 6 per cent eosinophils. The sedimentation rate was normal, the cephalin flocculation test was positive, and the icteric index was 37. The urine contained bile and urobilinogen in a dilution of 1:160. Penicillin and Chloromycetin therapy was instituted, but the high fever persisted and the rash became vesicular and began to desquamate. There was an increasing leucocytosis and eosinophilia, a gradual disappearance of the atypical lymphocytes, and a marked bone marrow eosinophilia. No arterial or other lesions were manifest in a muscle biopsy. A diagnosis was not established and all the signs and symptoms gradually disappeared. During the eighth week after the onset of this illness, the patient had a grand mal convulsion and was again given 100 mg. Dilantin. Following the third dose, the malaise, rash, and eosinophilia reappeared. The symptoms regressed upon cessation of the drug. I. GLAZER.

Some Cases of General Allergy to Insulin in the Course of Psychiatric Treatment With Insulin Shock. Dahl, L.: Acta Allergologica **3**: 26, 1950.

Seven cases (0.63 per cent) of allergic reactions to insulin were encountered among 1,108 patients subjected to insulin shock therapy. All 7 cases occurred among the 623 females in the series. In 5 of the 7 patients manifesting reactions there was a striking synchronism between the allergic reaction and menstruation. Six of the 7 reactions to insulin appeared during multiple courses of treatment. A positive Prausnitz-Küstner reaction to insulin was obtained in 1 of 3 patients who were thoroughly investigated. H.

An Experimental Plasma Substitute. Turner, F. P., Butler, B. C., Smith, M. E., and Scudder, J.: Surg., Gynec. & Obst. **88**: 661, 1949.

Macrose, a 6 per cent solution of partially hydrolyzed dextran, a high molecular polysaccharide, was employed as a plasma substitute in the treatment of shock and hemorrhage in 30 patients. Ten of the patients in the series developed untoward reactions. Six patients experienced flushing, pruritis, and urticaria; 3 patients developed cyanosis and a fall in blood pressure; 1 patient had an attack of asthma. An immunologic cross relationship between dextran and certain strains of streptococci and pneumococci has been demonstrated. It is possible that some individuals harbor antibodies capable of reacting with dextran. J. S.

Plasmacytosis and Hyperglobulinemia as Manifestations of Hypersensitivity: A Postmortem Study of Two Cases With Hypersensitivity Probably to Sulfadiazine. Robertson, T.: Am. J. Med. **9**: 315, 1950.

Two cases of probable hypersensitivity to sulfadiazine as evidenced by hyperglobulinemia, hepatitis, interstitial nephritis, and widespread plasmacytosis are presented. One patient, a 14-year-old male, survived for more than 5 months after the onset of symptoms, while the other patient, a 19-year-old female, survived only 19 days. The first patient had marked hyperglobulinemia and died of liver failure. Death in the second patient was attributed to kidney failure. In neither case was hypersensitivity suspected as the etiologic factor until autopsy findings revealed lesions suggestive of this state. F.

Anaphylaxis

Effect of Cortisone on Some Reactions of Hypersensitivity in Laboratory Animals. Harris, S., and Harris, T. N.: Proc. Soc. Exper. Biol. & Med. **74**: 186, 1950.

BCG-sensitized rabbits were treated with cortisone for 3½ days. Cutaneous sensitivity to tuberculin (OT) and to cytoplasmic particles (CP), prepared from BCG organisms, was found to disappear or to diminish at the end of cortisone therapy. Positive tuberculin skin reactions could again be elicited 4 days after cessation of the cortisone. Guinea pigs sensitized to OT and CP and treated with cortisone for 6 days also showed a disappearance of the positive intracutaneous reactions to OT and CP. Ulcers appeared at the sites of the skin tests in some of the animals several days after the cortisone was discontinued. One-half of a group of tubercle bacilli-sensitized guinea pigs was treated with cortisone. On the fourth day, the entire group was given intraperitoneal injections of OT. Within a few hours, all of the untreated animals developed symptoms of systemic shock and most of the animals died within 48 hours. The adrenal glands of these animals were found to be hemorrhagic. The animals that received cortisone remained well after the intraperitoneal injection of OT, and their adrenal glands were found to be normal. Cortisone did not seem to influence the size of the local Arthus reaction or the size of intracutaneous tests in horse serum-sensitized rabbits. When sheep erythrocytes and *Shigella paradysenteriae* organisms were injected into cortisone-treated and control rabbits, the curves of the antibody titers of both groups showed no significant differences. Also, cortisone did not inhibit anaphylactic shock in horse serum-sensitized rabbits. These results suggest that there is a difference in the mechanism of the antigen-antibody reactions in vivo, such as the Arthus reaction and anaphylaxis, on the one hand, and the bacterial type of hypersensitivity, on the other hand. B. S.

Effects on Anaphylactic Shock of Salicylates, Aminopyrine and Other Chemically and Pharmacologically Related Compounds. Lepper, M. H., Caldwell, E. R., Jr., Smith, P. K., and Miller, B. F.: Proc. Soc. Exper. Biol. & Med. **74**: 254, 1950.

Egg white-sensitized rabbits were treated with salicylates, aminopyrine, and other chemically and pharmacologically related compounds 1 hour before they were shocked with the antigen. Acetylsalicylic acid, sodium salicylate, and aminopyrine were the only drugs found to be effective in preventing fatal anaphylactic shock. These compounds were not effective in preventing fatal histamine shock. There was no correlation between the antipyretic and the antianaphylactic activity of these compounds. It is suggested that these drugs influence anaphylaxis by a direct effect on the specific combination of antigen and antibody. B. S.

Inhibition of Anaphylaxis in Guinea Pigs by D-Catechin. Moss, J. H., Beiler, J. M., and Martin, G. J.: Science **112**: 16, 1950.

Seven of a series of 14 guinea pigs sensitized with horse serum were injected intraperitoneally daily for 19 days with 2 mg. D-catechin, an aglycone flavonoid. All 14 animals were then injected intracardially with a shocking dose of normal horse serum. All of the control animals died in anaphylactic shock. None of the D-catechin-treated animals died. Four additional guinea pigs died in shock after an intracardial injection of 0.1 mg. of histamine diphosphate, although they had received 7 daily prophylactic doses of D-catechin. There was no significant difference in the gross pathology of the animals dying in anaphylactic and in histamine shock. It is suggested that the protective activity of D-catechin against anaphylactic but not against histamine shock could be attributed to its inhibition of histidine decarboxylase. I. GLAZER

Antianaphylactic Effect of Sympathin-N. Zauner Gutmann, A., and Farrerons-Co., F. J.: Acta Allergologica **3**: 20, 1950.

The antianaphylactic action of sympathin-N on anaphylactic shock in the guinea pig was confirmed. The mechanism of action of sympathin is believed to be similar to that of the antihistaminic drugs. H.

Antianaphylactic Effect of Spleen Extracts Rich in Sympathin. Farrerons-Co., F. J.: Acta Allergologica **3**: 12, 1950.

Fresh calf spleens can be so extracted as to produce a sympathin-like product having an adrenergic effect comparable to that of dl-nor-adrenalin. Ten guinea pigs, sensitized with egg white, were given daily injections of the sympathin product for 5 days prior to the administration of the shocking dose. A total of 69 μg. of this active adrenergic substance was administered to each animal. Of the 10 animals, only 2 died of anaphylactic shock. The mechanism of the antianaphylactic action of this spleen extract is discussed. H.

Vitamin B_{12} as an Anti-Anaphylactic. Traina, V.: Nature **166**: 78, 1950.

Guinea pigs were sensitized intraperitoneally with normal horse serum and 15 days later were injected intracardially with the same antigen. Five control animals developed shock and 4 of them died immediately. Five guinea pigs that were given 30 μg. of Vitamin B_{12} (Rubramin) intraperitoneally, 15 minutes before the shocking dose, manifested signs of shock but survived. Among 12 animals that received 45 μg. of Rubramin intraperitoneally before the shocking

dose, 2 died and 10 survived after signs of mild shock. It is suggested that Vitamin B_{12} in doses of from 60 to 90 μg. per kilogram of body weight protects guinea pigs against anaphylactic shock. I. GLAZER

Pharmacology, Physiology, and Pathology

An Unusual Sensitivity Reaction to Penicillin. Report of a Case With Autopsy Findings. Berne, R. M.: New England J. Med. **242**: 814, 1950.

A 53-year-old man, with a positive family history of allergy but a negative personal history, developed signs of pneumonia for which he received sulfadiazine and one intramuscular injection of 300,000 units of penicillin in oil and wax. Two days later, an erythematous rash appeared on the abdomen, arms, and feet. Sulfadiazine was discontinued and another injection of penicillin was given. The fever persisted and the rash became worse. Following the administration of Pyribenzamine and ephedrine, the skin lesions improved and cleared by the ninth day. Due to the continued fever and persistent signs of pneumonia, a third injection of penicillin in oil and wax was given. This was followed by a recurrence of the skin lesions, marked generalized edema of the skin, exfoliative dermatitis, and severe wheezing. Epinephrine, ephedrine, Pyribenzamine, and calcium afforded slight improvement, but, after a few days, a generalized urticaria and purpura developed. The patient was admitted to the hospital on the seventeenth day of the illness. At this time, the blood picture was normal. A tourniquet test was positive and the sedimentation rate was 64 mm. per hour. Roentgenogram of the chest showed an area of consolidation and a cavity in the apex of the left lower lobe. The patient developed a paralytic ileus with signs of peritonitis and shock. The purpuric lesions progressed into large subcutaneous hemorrhages. He died in pulmonary edema on the fifth hospital day.

At post-mortem examination, the microscopic examination of the skin revealed areas of ulceration and areas of extravasated red blood cells between the connective tissue fibers of the upper and lower corium. In other sites, there were foci of hemorrhagic necrosis with infiltration of polymorphonuclear leucocytes involving the epidermis and superficial corium. Cross section of the cutaneous veins showed a severe mural infiltration and periphlebitis, with narrowing and, in some cases, complete occlusion by masses of polymorphonuclear leucocytes and histiocytes. The walls of the duodenum, small intestine, and cecum were friable and there were diffuse hemorrhagic necrosis of the mucosa and superficial ulceration. Microscopic examination showed diffuse and focal necrosis with ulceration of the mucosa. In the submucosa, the arteries and veins showed acute necrotizing angiitis with thrombosis and surrounding areas of infiltration of polymorphonuclear leucocytes and lymphocytes. The vascular changes were most conspicuous in the veins of the ileum, some of which were obliterated by thrombosis. The lungs were emphysematous and edematous, and there was an abscess surrounded by consolidation in the apex of the left lower lobe.

The pathologic lesions of the hypersensitivity reaction, presumably due to penicillin in this case, were practically limited to the skin and intestinal tract. The sections through the early lesions demonstrated a primary involvement of the veins with sparing of the neighboring arteries. I. GLAZER

Periarteritis Nodosa Simulating Eosinophilic Leukemia. Blackburn, C. R.: Am. J. M. Sc. **220**: 313, 1950.

A case in which the clinical findings, as well as the peripheral blood and bone marrow studies, substantiated the diagnosis of eosinophilic leucemia is

reported. At autopsy, widespread lesions of periarteritis nodosa were present in most of the organs. Incorrect diagnoses of this type have apparently been made on numerous occasions in the past. This was confirmed in 2 series of cases which, when reviewed, revealed signs, symptoms, and pathologic findings more consistent with the diagnosis of periarteritis nodosa than with the original diagnosis of eosinophilic leucemia. F.

Pulmonary Cavitation Due to Polyarteritis. Sandler, B. P., Matthews, J. H., and Bornstein, S.: J. A. M. A. **144**: 754, 1950.

A 39-year-old man, complaining of weakness, dyspnea, weight loss, and a productive cough, was admitted to the chest service of a veterans hospital. A roentgenogram revealed 2 areas of cavitation in the right lung and a nodule in the left apex. The differential blood count was 79 per cent polymorphonuclears, 17 per cent lymphocytes, 1 per cent monocytes, and 3 per cent eosinophils. No acid-fast bacilli were found in the sputum or gastric washings. The tuberculin test was positive to 0.005 mg. of PPD. The patient ran a low-grade fever, complained of pain in the legs, and had symptoms referable to the gastrointestinal and genitourinary tracts. There was moderate hypertension. Sternal biopsy performed about 4 months after admission revealed a pronounced eosinophilia. Shortly after this, petechiae appeared on both legs; later, the petechial sites became pustular. Various medications and supportive measures were of no avail and the patient died 5½ months after admission. Autopsy disclosed the typical pathologic findings of periarteritis nodosa throughout the body.

Polyarteritis involves the lungs in about 27 per cent of the cases. The pulmonary manifestations may vary clinically, roentgenologically, and pathologically, depending upon the extent of the lesions. A diagnosis of polyarteritis should be considered seriously in any case with pulmonary symptoms of obscure etiology which runs a chronic febrile course and manifests evidence of widespread systemic disease. F.

Local Antihistaminic Action. Hensen, J. P.: J. Pharmacol. & Exper. Therap. **100**: 136, 1950.

The extravasation of intravenously administered trypan blue was measured in the skin of rabbits following the intracutaneous injection of histamine. One hour later, the experiment was repeated in the same animals following the local application of solutions of Decapryn, Thephorin, Neo-antergan or Pyribenzamine. All solutions except Thephorin diminished capillary permeability. The latter showed a tendency to increase dye infiltration when administered either locally or intravenously. It is suggested that Theophorin, because of its unusual chemical structure, acts by a mechanism different from that operative in the action of the other antihistaminics. E. K.

The Eosinophil Response: Immediate Vs. Delayed Eosinopenia. Last, J. H., Jordan, P., Pitesky, I., and Bond, E.: Science **112**: 47, 1950.

Unanesthetized trained dogs were injected intravenously with histamine (0.5 or 5 μg. per kilogram per minute for 60 minutes), with 5 or 10 ml. of aqueous adrenal cortical extract (ACE), or with 50 mg. ACTH. Following the infusion of histamine, the eosinophil blood count dropped precipitously within the first 10 or 15 minutes and then slowly rose to about 60 per cent of the control values. In contrast, the infusion of epinephrine or the injection of ACTH or ACE produced a delayed eosinopenic reaction which reached a

maximum in about 4 hours. It is suggested that the immediate type of eosinopenia produced by histamine is mediated by a mechanism different from that responsible for the delayed eosinopenic response following epinephrine, ACE, or ACTH. I. GLAZER

Selective Inhibition of Brain Respiration by Benadryl. Carlisle, E. M., and Crescitelli, F.: Science **112**: 272, 1950.

The oxygen consumption curves of slices of rat cerebral cortex in Krebs-Ringer solution, with and without glucose or l-glutamate, were studied. The addition of Benadryl, Pyribenzamine, or Histadyl inhibited respiration in the plain and l-glutamate media but not in the glucose medium. Histamine hydrochloride did not influence the rate of oxygen consumption nor did it prevent the inhibition of respiration by Benadryl in glutamate medium. Other substances, such as n-amyl carbamate, dl-amidone, and morphine, did not show the selective action of Benadryl and depressed respiration equally in both glucose and l-glutamate media. I. GLAZER

Eosinophil Response to Epinephrine and Nor-Epinephrine. Pellegrino, P. C., Morris, G. M., and Trubowitz, S.: Proc. Soc. Exper. Biol. & Med. **74**: 330, 1950.

Fifty-three patients with various illnesses were injected intravenously with 0.2 or 0.3 mg. of epinephrine or nor-epinephrine. Patients with adrenal insufficiency, heart disease, or chronic debilitating disease were excluded from this study. There was an average decrease of 35 per cent and 48.6 per cent in the circulating eosinophils 4 hours after the administration of 0.2 and 0.3 mg. of epinephrine, respectively. A consistent fall in the number of eosinophils was not noted following the administration of either dose of nor-epinephrine. It was concluded that nor-epinephrine is probably not a physiologic excitor of the pituitary adrenal system. B. SIEGEL

Reciprocal Detoxifying Effects of "Benadryl" and "Aminopterin." Traina, V.: Nature **166**: 158, 1950.

Ten albino mice injected intraperitoneally with 1 mg. of the folic acid antagonist 4-aminopteroylglutamic acid (Aminopterin) died within 4 days. The subcutaneous administration of 0.5 mg. Benadryl twice daily to a similar group delayed death for about 2 days. When guinea pigs were given 25 mg. of Benadryl intraperitoneally, all developed convulsions and 4 died. When 1 mg. of Aminopterin was administered intraperitoneally 10 minutes before 25 mg. of Benadryl was injected, none of the animols showed convulsions and all survived. Six guinea pigs that received 50 mg. Benadryl 10 minutes after the administration of 1 mg. of Aminopterin intraperitoneally developed convulsions; only 2 of them recovered. I. GLAZER

The Failure of Antihistaminic Drugs to Prevent or Cure the Common Cold and Undifferentiated Respiratory Diseases. Feller, A. E., Badger, G. F., Hodges, R. G., Jordan, W. S., Jr., Rammelkamp, C. H., Jr., and Dingle, J. H.: New England J. Med. **242**: 737, 1950.

A group of normal volunteers was given 50 mg. of either pyrathiazine hydrochloride (Pyrrolazote) or thonzylamine hydrochloride (Neohetramine) 4 times a day for 5 days. Another group was given placebos. Two or 12 hours after the first dose, all the volunteers were inoculated intranasally with diluted

nasal secretions from a patient with a severe common cold. The antihistaminic drugs failed to prevent and to alter the severity and duration of the induced common colds. I. GLAZER

Sudorific Action of Adrenalin on the Human Sweat Glands and Determination of Their Excitability. Wada, M.: Science **111**: 376, 1950.

Intracutaneous injections of 0.1 or 0.2 ml. of Adrenalin Hydrochloride diluted 1:1000 or 1:10,000 were made on different body areas of normal subjects. Using an extremely sensitive method for detection of sweat secretion, a local sudorific action was noted within one or 2 minutes. This effect spread progressively as the anemic area became larger. The sweat response reached its maximum in 1 hour and stopped within 4 or 5 hours after the injection. The extent and duration of this action depended upon the concentration of the adrenalin, the minimal effective concentration being $1:10^7$. It was not inhibited by atropine nor influenced by cocaine. The response of the sweat glands to adrenalin was the same on the arms, legs, and trunk. It was diminished in subjects between the ages of 1 and 12 years and in those over 62 years of age. It was equal in newborn babies and their puerperal mothers. I. GLAZER

Response of Circulating Eosinophils to Nor-Epinephrine, Epinephrine and Emotional Stress in Humans. Humphreys, R. J., and Raab, W.: Proc. Soc. Exper. Biol. & Med. **74**: 302, 1950.

Eosinophil counts were done on 12 patients prior to and 4 hours following subcutaneous injections of l-epinephrine and l-nor-epinephrine. The average eosinophil decrease with epinephrine was 61 per cent, while the average decrease with nor-epinephrine was only 9 per cent. Studies on 24 medical students performed during a quiz period showed an average of 128 eosinophils per cubic millimeter. During a nonstress period, the average count was 66 per cubic millimeter. These results, added to the pattern of the accompanying cardiovascular reactions, suggest that the neurovegetative manifestations under emotional stress are essentially caused by a discharge of epinephrine from the adrenal medulla. On the other hand, a simultaneous discharge of some norepinephrine from the adrenal medulla and from the postganglionic sympathetic fibers during emotional stress cannot be entirely excluded. B. SIEGEL

The Function of the Plasma Cell: Editorial. Barr, D. P.: Am. J. Med. **9**: 277, 1950.

Plasma cells first appear after birth in some presumably normal interstitial, lymphoid, and glandular tissues. They accumulate as part of the cellular response to a wide variety of subacute and chronic infections and as a consequence of some supposedly hypersensitive states. In multiple myeloma, plasmacytes or cells closely resembling them may form single or numerous tumors in the bone marrow. The association of Bence-Jones proteinuria with multiple myeloma led to the suspicion that plasma cells might actually be responsible for the production of abnormal proteins. Clinical estimation of serum proteins revealed that abnormal globulins, distinct from those of the Bence-Jones group, are present in multiple myeloma and also that hyperglobulinemia occurs in other conditions in which plasma cell proliferation is obtrusive. The various affections in which hyperglobulinemia is found show an augmentation of plasma cells and other cells belonging to the reticuloendothelial system. There is considerable clinical evidence of a circumstantial nature that plasma cells participate in the formation of immune globulins and antibodies. This rests chiefly

on their frequent presence in subacute and chronic infections, their appearance in the circulating blood of patients with certain exanthemas, and their demonstration in isolated instances of serum sickness, sulfadiazine poisoning, and other hypersensitive states. More important evidence based on animal experimentation indicates that the continued injection of antigen produces a rising titer of antibody and a widespread and often very large accumulation of plasmacytes. Although at present there is no agreement as to the stage at which antibody production is maximal, there can be little doubt as to the coincidence between plasmacyte response and the development of immune proteins.

Even without definite proof of specific function, the role of the plasma cell is so significant and the evidence of its reality is so cogent that it cannot be ignored in the consideration of clinical states and the phenomena of immunity.

F.

Biological Studies on Cortisone in Mice. Spain, D. M., Molomot, N., and Haber, A.: Science **112**: 335, 1950.

Mice were subjected to standardized wounds of the ear and treated with 0.1 mg. cortisone twice daily, beginning 24 hours prior to wounding and ending 4 hours prior to being sacrificed from 1 to 5 days later. Microscopic examination of the wounds revealed complete suppression of all elements of wound healing when compared with identical wounds in untreated controls. The effect was similar to that seen in vitamin C depletion, particularly in the absence of ground substance. When cortisone therapy was instituted 72 hours after wounding, there was no evidence of lysis of the already existing granulation tissue. The inhibition of granulation tissue formation occurred only when cortisone was given during the early stages of initiation of repair. When mice were injected intraperitoneally with India ink on the third or fourth day of cortisone treatment and sacrificed on the fifth day, the peritoneal cavity and visceral organ surfaces were diffusely covered with carbon particles while the lymph nodes were grossly and microscopically free of them. On the other hand, in untreated mice, the carbon particles were found in the omental, mesenteric, and retroperitoneal regions, and in the mediastinal lymph nodes; the spleen was 5 times the size of that in the treated animals. It is suggested that the retardation in macrophage response, as evidenced by the diminished phagocytic activity of the reticuloendothelial system, is due to stimulation of antihyaluronidase activity by cortisone. A local inflammation was induced by an intracutaneous injection of turpentine in mice treated with cortisone for 3 days. The area was excised after 18 hours and examined microscopically. There was no difference in the formation of acute inflammatory exudate between the cortisone-treated and the control animals.

I. GLAZER

Nausea and Vomiting Induced by Pregnancy or by Administration of Synthetic Estrogens: Treatment With Antihistaminic Compounds. A Further Study of an Additional 50 Cases. Finch, J. W.: Am. J. Obst. & Gynec. **58**: 591, 1949.

On the theory that the nausea and vomiting of early pregnancy are due to an allergic reaction, 29 patients with this complaint were treated with antihistaminic drugs. Benadryl was administered in 18 cases and Histadyl in eleven. Twenty-seven patients were completely relieved, 1 was improved, and 1 remained unimproved. A group of 21 patients with menstrual or menopausal disturbances who were being treated with synthetic estrogens could not tolerate the drugs because of side reactions consisting of nausea and vomiting.

When Benadryl or Histadyl was given in conjunction with the estrogens, nausea or vomiting failed to occur. Both antihistaminics were equally effective, but Benadryl caused more drowsiness. J. S.

Lesions of the Coronary Arteries and Great Vessels of the Dog Following Injection of Adrenalin. Waters, L. L., and deSuto-Nagy, G. I.: Science **111**: 634, 1950.

Dogs under pentothal anesthesia were injected intravenously with Adrenalin 1:1000 in sufficient quantities (approximately 8 ml.) to keep the mean femoral pressure between 220 and 280 for 30 minutes. They recovered from the anesthesia but died within 24 hours. Unanesthetized dogs were given 1 ml. of Adrenalin every 15 minutes over a period of 1 hour on 3 successive days, and sacrificed between the fourth and eighth day. At autopsy, all the animals showed segmental necrosis of the coronary arteries, necrosis and hemorrhage of the media of the pulmonary artery and aorta, and interstitial myocardial edema with focal myocardial necrosis. Another group of dogs received dibenzamine hydrochloride, 20 mg. per kilogram intravenously, at least 30 minutes before the Adrenalin injection. There was no rise in the systemic arterial pressure, but the accelerating action of Adrenalin on the heart was not inhibited. These dogs, as well as the ones receiving dibenzamine alone, failed to develop cardiovascular lesions. I. GLAZER

Miscellaneous

The Inhibitory Effect of Three Antihistaminic Compounds on the Growth of Fungi Pathogenic for Man. Carson, L. E., and Campbell, C. C.: Science **111**: 689, 1950.

Following the observation that epidermophytosis of the feet improved following applications of 2 per cent Pyribenzamine cream, the fungistatic or fungicidal properties of several antihistaminic drugs were studied. Tubes with Mycophil broth, containing Pyribenzamine hydrochloride, Antistine hydrochloride, or di-phenyl-pyraline (Nopco) at a pH of about 6.5, were inoculated with strains of Microsporum, Trichophyton, *Epidermophyton floccosum, Candida* (Monilia) *albicans, Cryptococcus neoformans, Histoplasma capsulatum* and *Blastomyces dermatitidis.* All the tubes including the controls which did not contain any antihistaminics were incubated at 28° C. and examined at 3 day intervals for 2 weeks. The growth of all strains except *C. albicans* was completely inhibited, macroscopically, by di-phenyl-pyraline at a concentration of 0.5 mg. per milliliter. The effective concentration of Antistine ranged from 0.5 to 1.0 mg. per milliliter. Concentrations of 1.0 mg. per milliliter of Pyribenzamine failed to inhibit the growth of most of the organisms. At pH 8.0, the results were similar except that Pyribenzamine became more effective. A concentration of 1.0 mg. per milliliter of each compound at pH 5.0 failed to inhibit growth. Petri dishes with Sabouraud's dextrose agar containing 10 per cent horse serum (pH 5.0 and 7.0) were streaked with cultures of *T. mentagrophytes.* Aqueous solutions of the drugs were put in penicylinders in the centers of the plates and the zone of inhibition of growth was measured after 10 days at 28° C. Pyribenzamine was less inhibitory than di-phenyl-pyraline and Antistine was ineffective. The growth of the systemic species of *C. neoformans* and of yeast forms of *H. capsulatum, B. dermatitidis,* and *Sporotrichum schencki* on horse serum agar (pH 7.0) at 37° C. was inhibited by Pyribenzamine and di-phenyl-pyraline. I. GLAZER

Effect of the Removal of Lipids on Specific Precipitation. Krueger, R. C., and Heidelberger, M.: J. Exper. Med. **92**: 383, 1950.

Quantitative precipitin tests were made between specific horse antisera and rabbit albumin, globulins, or type III Pneumococcus polysaccharide. Alcohol-ether treatment of the sera (often used in ordinary fractionation techniques) removed serum lipids, but failed to interfere with complete precipitation. The precipitate obtained following lipid removal was very fine and centrifugation at high speeds was often necessary to obtain a clear supernatant fluid. It is suggested that lipids probably serve as nuclei for the formation of antigen-antibody particles and that they may also assist in cementing small particles into larger aggregates. K.

Effectiveness of Cortisone Administered Orally. Freyberg, R. H., Traeger, C. T., Adams, C. H., Kusku, T., Wainerdi, H., and Bonomo, I.: Science **112**: 429, 1950.

Four patients suffering from rheumatoid arthritis were treated with oral cortisone (100 mg. tablets, Merck & Company, Inc.). The dosage schedule followed was 300 mg. on the first day, 200 mg. on the second day, and 100 mg. daily subsequently. The first 2 patients showed significant improvement after the second day, but relapsed promptly after cessation of the drug on the tenth day. In the third patient, the response was excellent and compared favorably with the results obtained previously with parenteral courses of cortisone and ACTH therapy. The fourth patient experienced a complete clinical arrestment on an oral dose of 100 mg. twice daily. Subsequently, when this patient was given the same dose of cortisone intramuscularly, the clinical response was the same as that affected by oral cortisone. Two of the patients preferred the tablets because they felt that the effects were more satisfactory. I. GLAZER

Eosinophilic Trichomonal Cystitis. Essen, L. E.: Acta Allergologica **3**: 39, 1950.

A case of chronic cystitis with periodic abacterial eosinophilic pyuria is presented. Clinical analysis, including specific allergic and urologic investigations, failed to establish the etiology of the disease. A detailed analysis of the sediment revealed that the pyuria was almost 100 per cent eosinophilic. Antiallergic therapy, plus repeated injections of Adrenalin, failed to influence the course of the illness. Continued sedimentary analysis revealed the presence of trichomonads in large numbers. The case was finally diagnosed as trichomonal cystitis. H.

Combined Active-Passive Re-Immunization Against Tetanus in Previously Immunized Individuals: Experimental and Clinical Evidence. Miller, J., and Ryan, M.: J. Immunol. **65**: 143, 1950.

Rabbits, monkeys, and human beings were given injections of tetanus toxoid and tetanus antitoxin, either separately or simultaneously, in order to observe the time interval necessary for antitoxin production. Antitoxin levels usually rose by the fourth day following stimulation with toxoid. There was a marked variation in the capacity of the host to form antitoxin, some of the subjects showing practically no response. The addition of hyaluronidase to the toxoid injection failed to hasten antitoxin production, but may have been responsible for increasing the actual amount of antitoxin eventually produced. A fluid preparation, rather than the precipitated toxoid, was used in order to

obtain a rapid anamnestic response. In the light of these findings, the authors suggest that, under certain conditions, it may be desirable to give tetanus toxoid and tetanus antitoxin simultaneously in patients previously immunized with toxoid. R. WISEMAN

Practical Application of a Hemagglutination Reaction in Tuberculosis. Rothbard, S., Dooneief, A. S., and Hite, K. E.: Proc. Soc. Exper. Biol. & Med. **74**: 72, 1950.

Hemagglutination tests, utilizing sheep erythrocytes sensitized with concentrated old tuberculin, were performed on 216 sera obtained from normal adults and from patients with syphilis or with nontuberculous chest diseases. Negative reactions were obtained with the sera of 203 cases. The remaining sera showed positive reactions in dilutions not higher than 1:4. Positive reactions, in dilutions ranging from 1:5 to 1:512, were obtained with 92 per cent of the sera obtained from 168 patients with active tuberculosis. Among a group of 33 quiescent tuberculous patients, negative reactions were obtained with the sera of 31; sera from the other 2 patients gave positive reactions in a dilution of 1:2. A positive hemagglutination reaction in a titer of 1:8 or higher is apparently a relatively specific test for active tuberculosis. B. S.

Effect of Intravenous Injection of Tuberculin on Leucocytes of Normal and Tuberculous Rabbits. Brandt, N. G., Sandage, C. N., and Birkeland, J. M.: Proc. Soc. Exper. Biol. & Med. **74**: 315, 1950.

Tuberculous rabbits were injected intravenously with PPD. The number of circulating lymphocytes began to decrease in 3 hours, maximum decrease occurring in 6 to 9 hours after the injection of tuberculin. During this period, from 75 to 80 per cent of the lymphocytes disappeared. The lymphocytes returned to the original level in about 24 hours. The circulating neutrophiles showed an increase between 9 and 12 hours after PPD was injected. When normal animals were injected with PPD, no such hematological changes were observed. It is suggested that the relative lymphopenia seen in active tuberculosis is due to a continuous autoinoculation with tuberculoprotein. B. S.

Pleural Fluid Eosinophilia. MacMurray, F. G., Katz, S., and Zimmerman, H. J.: New England J. Med. **243**: 330, 1950.

Pleural fluid eosinophilia was encountered in 3 cases. One patient with lobar pneumonia had an associated blood eosinophilia and was being treated with penicillin. A second patient was suffering from Hodgkin's disease and had a normal eosinophil count. The third patient was an atopic individual with a blood eosinophilia and a serosanguineous pleural effusion of undetermined origin. I. GLAZER